

A marine food-web bioaccumulation model for PCBs and PBDEs in the Georgia Basin

Colm Condon, Frank Gobas, Simon Fraser University*

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The Georgia Basin (GB), located on the southwest coast of British Columbia, is home to a complex marine ecosystem which is under increasing environmental stress due to population and development pressures. One of the contributing stressors is the presence of persistent organic pollutants (POPs); PCBs and PBDEs, for instance, have been detected at unexpectedly high concentrations in marine mammals, marine birds, and fish. To help environmental managers predict concentrations of POPs in GB-biota, the associated health risks, and the response of these concentrations to POP reduction strategies, a food-web model will be developed, parameterized, and tested for PCBs and PBDEs in the GB. The model will simulate the movement of total PCBs / PBDEs and total toxic equivalent concentrations from the air, water, and sediment of the GB through the food web using mathematical expressions for the uptake and elimination of PCBs / PBDEs in each organism of the food web. The model is expected to be adaptable for use with other POPs in the same or different systems. The project is currently in the development and parameterization phase.